

A DEDICATED SATELLITE FOR MEETING HEALTH EDUCATION NEEDS OF AFRO-ASIAN NATIONS: POSSIBILITIES, ACTION PLAN AND BENEFITS

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ABSTRACT

The World Health Organization (WHO) reported that regardless of promises of better healthcare by governments and donor countries, millions of mothers, newborn babies and children continue to die each year in Africa from preventable diseases. The Asian countries are no exception. This situation warns us to analyze existing health education challenges in Afro-Asian nations and look for innovative strategies to overcome these challenges. The launch of a dedicated Afro-Asian Satellite will help to overcome health education challenges by strengthening the system that serves the people and by creating a partnership between the providers and users of health services. Considering this approach, the present paper discusses about possibilities, benefits and action plan for launching a dedicated satellite to meet the health education needs of the Afro-Asian nations.

Keywords: Afro-Asian Nations, Health Education, Technology for Education, Satellite Communication, Action Plans

1. BACKGROUND

The World Health Organization reported that regardless of promises of better healthcare by governments and donor countries, millions of mothers, newborn babies and children continue to die each year in Africa from preventable diseases. The WHO further observed that some of the continent's biggest problems are getting worse and the rates of death during childbirth and among young children are increasing (WHO, 2006). The Asian countries are no exception. Most of them are also facing a number of health education challenges like Africa. Bandara (2005, p. 33) reveals, "The Asia-Pacific region is confronted with several emerging health related issues. The prevalence of diseases causing high rates of mortality and morbidity, and the lack of skilled health personnel, infrastructure, financial resources and health systems that are responsive to the needs of society, are among them." This situation warns us to analyze existing health education challenges in Afro-Asian nations and look for innovative strategies to overcome these challenges.

2. AFRO-ASIAN NATIONS: HEALTH EDUCATION CHALLENGES

Reuters New Media (2005) reported that Africa is ravaged by preventable and curable illnesses but healthcare is often non-existent, sub-standard or too expensive for all but an elite. According to this report some of the continent's major health problems are: (i) AIDS - with just over 10 percent of the world's population, Africa is home to more than 60 percent of all HIV positive people (ii) DIARRHOEA - is responsible for as many as 7.7% of all deaths in Africa. (iii) MALARIA - The mosquito-borne disease kills between 1 and 5 million each year, with 90 percent of deaths in Africa. Malaria kills an African child every 30 seconds and is responsible for 20 percent of Africa's under-five mortality and 10 percent of the continent's overall disease burden. (iv) MEASLES - the virus infects more than 30 million people each year, mostly children, and kills about 530,000. Africa and South and Southeast Asia account

for 82 percent of global measles deaths. (v) TUBERCULOSIS - the respiratory disease kills 2 million a year and is a frequent killer of people with AIDS. African states affected by the HIV/AIDS pandemic have experienced an annual 10 percent rise in TB cases.

These health problems are more or less same in the majority of Asian countries. The lack of financial and human resources has become a major constraint for many poor countries in the Afro-Asian region, posing a serious obstacle to the promotion of public health, particularly in the context of achieving health-related Millennium Development Goals by 2015. Countries in South Asia and Sub-Saharan Africa have failed to scale up interventions to address the significant burden of diseases. Failure to scale up cost-effective interventions is the result of fragile health system capacity, lack of political commitment and weak public health capacity. Public health education and competency at various levels are needed to translate evidence into policy, and to implement and evaluate programmes (Tangcharoensathien and Prakongsai, 2007).

African Regional Health Report (WHO, 2006), the first study to look at health trends among 738 million Africans, observed that more investment was needed to cut disease and tackle poverty and because of AIDS and armed conflicts, the health situation in many African countries has not improved in recent years and in some cases has worsened. In Asian context, Bandara (2005, p. 34) observes, "Developing countries in the Asia-Pacific region are in different stages of economic development and have varying levels of health systems. For the very poor, outreach of adequate basic health services is still a challenge; for others the issue is making policy choices on resource allocation and the appropriate balance of public-private interventions to address persistent and emerging health issues."

The health education challenges in the Afro-Asian region can be aptly summarized in the words of Smalley (2007), "Too many people in Africa are dying due to problems that are preventable and treatable. Health care services are not reaching the people who they are meant to serve due to several factors that contribute to the worrying picture of health in Africa. These include poverty, cultural, gender and geographical barriers, and the weaknesses and reach of the current health structure." We all must keep in mind that half of the World's population lives in Afro-Asian nations and their well being is essential for global peace, prosperity and development. The situation demands that we must look for innovative ways to meet health education needs of Afro-Asian nations.

Satellite Communication can be an effective strategy to meet this need in a technology-supported, cost-effective and time-efficient manner. This is evident from the observation of Geray et al. (2007) who conducted a study to understand the level of actual exposure and the types of young people exposed to a global media campaign to promote HIV prevention among 16- to 25-year-olds by MTV programme "Staying Alive," in 2002. This study lead them to conclude that "The possibility of reaching millions of young people through global networks with minimal marginal costs after production creates a new paradigm for reaching an important segment of young people" (Geray et al., 2007, p. 36).

3. POSSIBILITIES

Satellites have already been accepted as an effective medium for the communication of education and health services. For example, The Rural Health Education Foundation of Australia broadcasts distance education programs using digital satellite technology, the Internet including live webcasting, "enduring" materials (DVDs), other television services and new technologies as they become available. The Foundation operates a continually expanding network of more than 660 satellite receiving sites throughout rural and remote Australia, called the Rural Health Satellite Network. The Foundation's satellite network is one of the largest dedicated networks of its kind in the world, reaching more than 90 per cent of rural doctors and other health professionals (The Rural Health Education Foundation, 2010).

Real-time teleconsulting, diagnosis from a remote location and the transmission of clinical data and multimedia medical content are particularly needed when the access to medical services is difficult like in geographically dispersed locations (Healthware, 2005, p. 2). Satellites are best tool to meet these objectives, as observed by ISRO (2008), "Satellites can establish the connectivity between urban educational institutions with adequate infrastructure imparting quality education and the large number of rural and semi-urban educational institutions. Besides supporting formal education, a satellite system can facilitate the dissemination of knowledge to the rural and remote population about important aspects like health, hygiene and personality development and allow professionals to update their knowledge base as well."

Several countries are now collaborating with each other to use satellite for tele-education and tele-medicine. Space technology has now proliferated into everyday life particularly in developing economies through wireless communication, navigation, disaster communication, tele-education and tele-health care (Sengupta, 2008). Not only developing but developed nations are also using benefits of satellite system. Europe's Information Society Thematic Portal (2008) declared that Satellite systems are also crucial in ensuring all Europeans can access the Information Society in rural and outlying regions, where other systems are difficult to deploy on a commercial basis. By providing these regions with high-quality access to Information Society services in areas as diverse as health, education and e-Business, satellite systems can help close Europe's digital divide.

Horton (2000, p.1193) suggests, "To remain viable and productive, public health workers need the ability to continue to acquire knowledge. Through new technologies - in addition to the technologies of the past - and distance learning, they can access information and training at any time, from any place." Satellite communication presents number of possibilities to provide health education training to health workers via distance learning and e-learning modes.

Distance learning and e-learning are vital for the empowerment of health workers in Afro-Asian regions. Jones et al. (2006) have described five potential benefits of e-learning for schools of nursing, viz.: (i) providing, as a blend of different methods, a more flexible and effective learning environment for students; (ii) providing the opportunity for collaboration between institutions and therefore a more efficient delivery of nurse education; (iii) reducing travel time for students and staff; (iv) reducing costs for universities; and (v) helping to improve the information and IT literacy of nurses to participate in e-health developments. and Satellite support is vital for these purposes.

Many schools of nursing, as other disciplines in higher education, are now developing e-learning (Adams 2004) which may comprise not only web pages but also e-mail based discussion groups, videoconferencing, synchronous chat, and web casting. Satellite communication is instrumental for all these initiatives as the majority of population in Afro-Asian regions lives in remote and rural areas.

4. SOME INITIATIVES

The Integrated Project "standard and Interoperable satellite solution to deploy health care services over WideAREa" (HEALTHWARE), which is co-financed by the European Commission and coordinated by Thales Alenia Space (France) validates and promotes the usage of a light and cost effective satellite technology (DVB_RCS-combining the DVB-S norm for TV broadcast with an efficient return link) in geographic areas lacking sufficient terrestrial telecommunication capacities for running interactive applications based on videoconferencing, like collaborative staff meeting, teleexpertise, teleconsultation, training, as well as the exchange of high volumes of image data (Healthware, 2005).

College of Education and Health Professions at the University of Arkansas are actively planning to relocate nursing education to the planned Fayetteville satellite campus of

the University of Arkansas for Medical Sciences, which is based in Little Rock. According to Reed Greenwood, Dean of the College of Education and Health Professions, "With compressed interactive video capabilities, lectures in Little Rock can be broadcast in Fayetteville and vice versa, just one of many ways faculty of the two campuses can collaborate. Nursing and medical students can also share some of the simulation equipment such as computerized mannequins that are very expensive" (College of Education and Health Professions, 2008).

Talking about a satellite baccalaureate nursing programme in USA, Sullinger and Ostmo (1998, pp.1337-38) comment, "In addition to the distance learning technologies, the satellite programme in Marshfield has resulted in an equal number of benefits for both the hospital and the university. Students who would not have been afforded the opportunity of a baccalaureate education can now enrol in a programme closer to home and in a hospital which may later employ them. Continuing education for hospital employees is accessible and of consistent quality. A link between research and practice has been established, strengthened by the personal associations of collegial partners."

Horton (2000, p.1194) reports, "In 1999, in partnership with the Centres for Disease Control and Prevention, the National Institute of Environmental Health Sciences, and the Alabama Department of Public Health, we were able to broadcast the first scientific session of the APHA Annual Meeting in Chicago, III, by satellite. We registered viewers at 225 sites and offered continuing education credits to physicians, public health education specialists, and public health nurses who viewed the program. This event was greeted with such enthusiasm that we will expand our offerings up to 3 days of satellite programming from the Annual Meeting in Boston, Mass, in November 2000."

Michael et al. (2003) conducted a study to evaluate the feasibility, acceptability, effectiveness, and cost of conducting practice based, small-group CME learning by videoconference and reported that the videoconferencing format was well accepted by learners and the facilitator, and there was evidence that it led to knowledge gain and change to practice. They further observed that videoconferencing has the potential to bring the benefits to small-group, practice-based learning to many physicians; however, strict attention to videoconferencing techniques is required.

According to Garg (2008, p.13), "The Pan-African tele-education and tele-medicine initiative of the Government of India, envisages that all 53 African Union member states be connected through satellite, fibre optic and wireless networks. It should be seen as an effort towards capacity building across cultures in the spirit of *Vasudhaiva Kutumbakam* (entire globe is a family)." Similarly Jokivirta (2006) reported that a tele-medicine network would connect five Universities (two in India and three in Africa) to 53 remote hospitals for tele-medicine. The main objective of the tele-medicine network will be to share the knowledge of Indian medical professionals with their African counterparts through on-line training programmes for nurses, paramedical staff and other health workers.

In India, world's first dedicated educational satellite EDUSAT is providing number of services. The objectives of EDUSAT is to meet the challenge of number and quality through providing effective teacher training, supplementing the curriculum based teaching, providing access to quality resource persons (higher & professional education), strengthening the distance education efforts initiated by various agencies, taking education to every nook and corner of the country, and providing access to new technologies (Bhatia, 2008). Beside supporting formal education its other objectives are to impart education in the regional languages, supplement curriculum based teaching, greater community participation, increased access to education and to provide communication capacities for fulfilling the requirements of several sectors.

The main services provided by EDUSAT are: Radio Broadcast, Webcam as Return Link, Telephone as Return Link, Talkback Channel as Return Link, Internet as Return Link,

Online Education through Internet, TV Broadcast, Video Conferencing, and Voice Chat on Internet. A number of institutions in India are utilizing the services of EDUSAT for educational purposes like imparting curriculum-based education, development of digital course wares, providing professional educational courses, conducting teleconferencing sessions, conducting inter-active orientation/training programmes of teachers and teachers' educators, and organizing group discussion, lectures, demonstrations, video-shows, training programmes, seminars and capacity building programmes.

These initiatives motivate us to think about the possibility of launching a dedicated satellite to meet the health education needs of Afro-Asian nations.

5. ACTION PLAN

The proposed satellite will be a communication satellite and will be placed in a geostationary orbit. A communications satellite is a radio relay station in orbit above the earth that receives, amplifies, and redirects analog and digital signals carried on a specific radio frequency. Most communications satellites in use today for commercial purposes are placed in the geostationary orbit, because of the following advantages:

- One satellite can cover almost 1/3 of Earth's surface, offering a reach far more extensive than what any terrestrial network can achieve.
- Communications require the use of fixed antennas. Since geosynchronous satellites remain stationary over the same orbital location, users can point their satellite dishes in the right direction, without costly tracking activities, making communications reliable and secure.
- GEO satellites are proven, reliable and secure - with a lifespan of 10-15 years.

All communications with a geostationary satellite require using an earth station or antenna. Earth Stations may be either fixed (installed at a specific location) or mobile for uses such as Satellite News Gathering (SNG) or maritime applications. Antennas range in size, from large telecommunications carrier dishes of 4.5 to 15 meters in diameter, to VSAT antennas which can be as small as under one meter, designed to support services such as Direct to Home TV (DTH) and rural telephony. The antenna, itself, will generally be connected to equipment indoors called an indoor unit (IDU), which then connects either to the actual communications devices being used, to a Local Area Network (LAN), or to additional terrestrial network infrastructure (Satellite Basics, 2010). According to Green (2004, p.39), the estimated total cost of ownership for a satellite today would be around \$149 – \$165 million. The cost breakup is as follows:

- Assuming a satellite purchase price of \$100 million
- Launch insurance \$18-\$22 million;
- Present value* of on-orbit insurance over 14 year life (PV of \$35-\$42 million) \$22-\$27 million (*Assuming 8 per cent cost of money);and
- Operating costs (mid-sized operator) \$9-\$16 million

We must keep in mind that launching of this dedicated satellite will not be an easy task. The reason is that it will involve number of nations and has to be established as a joint venture of different nationalities and cultures for a common agenda. This is a huge project and will involve about 100 countries or so. Getting them all to agree for this project will be a challenging and intimidating task. The other main challenges before launching of this satellite will be-designing of the satellite, meeting the recurring and non recurring expenses of satellite, ensuring that the various ground stations are in place so that communications can be sent and received, and to ensure its effective utilization for health education purposes. This is a huge undertaking and it all has to be conceptualized and finalized before anything is physically launched.

5.1 Launching the Action Plan

The Afro-Asian nations will be required to sign a treaty to set-up the launch pad for this satellite. This treaty will pave the way to finalize the objectives, mechanism, and launching of this satellite. The Afro-Asian nations will be required to devise an action plan for launching of this dedicated satellite. Keeping this need in mind, the researcher has developed an '**Afro-Asian Satellite for Health Education Launching Action Plan**'. This Action Plan is discussed in the following four sub-sections: operational strategy, informational inputs, functional mechanism and infrastructural support.

5.1.1 Operational Strategy

Being a collaborative effort, this dedicated satellite will be owned by all the member countries. The responsibility to launch and manage the satellite can be entrusted to a specific member country having required technical expertise for the cause. In present circumstances, India and China are front runners for this task. The reason is that India had already launched an indigenous dedicated satellite for education (EDUSAT) and has all the technical and manpower support to manage the Afro-Asian Satellite for Health Education and China has also carried number of advances in satellite technology.

The Afro-Asian nations will be required to establish an 'Afro-Asian Health Education Satellite Headquarter'. This headquarter can be established in any member country having all the required technical and infrastructural support and will be responsible to manage the activities of dedicated satellite. At the national level, every member nation will be required to establish a 'Satellite supported Health Education Department' in their ministries. These departments will have a direct linkage with 'Afro-Asian Health Education Satellite Headquarter'.

All the member nations will be required to provide finances for launching and managing of the dedicated satellite. The member nations will be required to form a financial pool to manage this satellite. Besides, international donor agencies and developed economies will also be persuaded to provide funding for this satellite. At national level, satellite supported health education activities will be financed by respective nations.

5.1.2 Informational Inputs

The member nations will be required to set-up an 'Afro-Asian Health Education Information Exchange Agency' for networking and exchange of information for health education purposes. This agency will involve a large number of governmental agencies, industries and NGOs to promote satellite communication applications for health education in the Afro-Asian region. The main task of this agency will be to help member nations to exchange information on national health policies and programmes to formulate and implement collaborative projects in satellite-based health care in the Afro-Asian region.

The other main task of this agency will be to establish appropriate linkages with trans-national working groups for effective use and promotion of satellite-based communications for health education. This agency will devise a system to identify, implement and utilize various health education programmes to cater to the health education needs of diverse Afro-Asian population.

5.1.3 Functional Mechanism

The satellite services to communities will be provided through 'Satellite Health Education Centers (SHECs)'. These centers will function in following manner. Every member nation will be required to set up a number of Satellite Health Education Centers in different localities. The number of centers that need to be established in a community will depend on the population and geography of the region.

Coordinators (trained health workers with ICTs usage skills) will be required to run and manage these SHECs. These coordinators will be appointed on regular or contract basis. The respective governments will meet the salaries of these coordinators. These coordinators will act as links between the community and different agencies responsible for health and family welfare in a country. These SHECs will also contain life-saving drugs and equipment to check weight, blood pressure, sugar level, etc.

The satellite support will help the SHECs to offer facilities like making phone calls, videoconferencing, and Internet surfing to the population residing in catchment areas. These facilities will be helpful in the treatment of and advice about the basic health problems of people in an immediate and cost-effective manner.

5.1.4 Infrastructural Support

For utilization of satellite services, infrastructural and human resources will be required to establish Receive only Terminals (ROT) and Satellite Interactive Terminals (SIT) at different 'Satellite Health Education Centers (SHECs)'. The required infrastructural support for establishment of these terminals will be as follows:

- A mini auditorium/classroom (25'x50') with proper seating arrangement and good audio-visual facility, multi-media projector, telephone and backup power supply.
- Roof top space for antenna installation.
- A coordinator and a technician to co-ordinate with service provider through help desk set-up for installation, operation training, repairs and maintenance.
- Hardware part to enable the connectivity.

6. POTENTIAL BENEFITS

In considering the health information needs of developing countries, one can not ignore the essential fact that poverty is the leading cause of poor health across the globe (WHO, 1996). Bandara, (2005, p. 52) observes, "Many of the diseases are closely associated with dietary habits, risky behaviour, lack of knowledge, environmental pollution and the lack of basic needs such as access to clean water and sanitation. Health education and promotional campaigns appear to be the single most important low-cost disease prevention strategy."

Continuing education using satellite broadcasting can improve knowledge and attitudes among public health professionals, as observed by Peddecord et al. (2007) in their assessment to participants' professional characteristics and their changes in knowledge, attitudes, and actions taken after viewing a public health preparedness training course on mass vaccination broadcast nationally by satellite. They further reported that a substantial percentage of viewers who responded to the follow-up questionnaire reported taking or planning to take relevant actions following the broadcast.

This observation aptly supports to Bond and Friebaum (1993) who claimed that telecommunications have been cost-effective in supporting health teams by providing physician-managers with the ability to supervise, consult, educate and evaluate the performance of health care workers located in remote communities. Similar results are experienced by the educational community. The ability to convey audio or video information interactively between any two or more people is basic to the education process, be it within a country or between countries, regardless of their locations or degree of isolation. The information originating some 1000 miles from its intended user arrives in real time and can be responded to in real time.

The launch of 'Dedicated Satellite for Health Education' will be an appropriate and useful step in meeting the health education needs of the Afro-Asian population. This satellite will help to overcome health education challenges in Afro-Asian region by strengthening the system that serves the people and creating a partnership between the providers and users of

health services. This satellite may be seen as a user-friendly, in-expensive, people-driven and participation-based technology to support health education in Afro-Asian region. This satellite will help the Afro-Asian communities in many ways to overcome their health education challenges.

The dedicated 'Afro-Asian Satellite for Health Education' will play a very significant role by providing a variety of health education services quite effectively and efficiently to Afro-Asian population. This optimism may be credited to the success of the world's first dedicated educational satellite EDUSAT, which is meeting the demand for interactive satellite-based open distance learning and training in India. The potential benefits of launching a dedicated 'Afro-Asian Satellite for Health Education' are discussed below.

6.1 Providing Education and Training to Medical Practitioners

Smith (1996, p. 18) noted, "There's a popular misconception that rural areas are medically underserved because no one really wants to practice there. Physicians and nurses, the conventional wisdom goes, flee small towns at the first opportunity to pursue high-paying jobs in the city. While they may be some truth to this, it is also true that many providers forsake isolated regions only because of limited opportunities to receive their educations and to practice". The satellite communication will contribute a lot to overcome this problem by providing opportunities for further education and training to medical practitioners, particularly to those serving in remote and rural areas.

The non-availability of literature to medical practitioners is other big challenge in Afro-Asian nations, as observed by Lown et al. (1998, p.37), "Many medical journals are already posted on the Internet, but we need new information institutions that are closely tuned to the health problems of poor countries. Such tuning requires a partnership of equals between health professionals of the two worlds, so that the shared information is scientifically sound, reliable, pertinent, and affordable." A satellite communication channel will ensure the availability of quality health education literature and research to medical practitioners working in the Afro-Asian region.

6.2 Health Education Information Sharing, Training and Awareness for Masses

Satellite communication will help medical practitioners to join different courses as per their need and convenience. Kuppuswamy and Pandian (2008) states, "As technologies for data compression and electronic transmission improve, telemedicine provides new opportunities for strengthening the rural health infrastructure. This could overcome traditional geographical and social barriers to obtaining high quality diagnosis and treatment. These benefits could be especially great within developing countries, which might be able to train more health staff cheaply, and stretch their limited health resources by accessing international information and expertise."

Healthcare today makes extensive use of Information and Communication Technologies (ICT) and (secured) broadband networks are often used to exchange medical information like reports and X-ray images. Furthermore care can be extended to mobile patients and to the patient's homes by using telemonitoring and teleconferencing facilities. The collaboration between health professionals is improved by teleconsulting and related services. In addition the teaching of students and the further education of health professionals benefit from real-time transmission of medical interventions and results like histology specimens (Healthware, 2005. p. 2)

Lown et al. (1998, p.36) observes, "The latest medical knowledge frequently concerned with tertiary-care problems may be remote from the needs of those in poor countries lacking primary health care. The issue of appropriate health information gains urgency as non-communicable disease, endemic in rich countries, increasingly takes a firm hold in poor countries". They further observed that "Women - essential to the upgrading of

health care in poor countries - are largely left on the sidelines. The problem is made more intractable by the absence of an information chain and an underdeveloped information culture. How can it be otherwise when most medical and nursing students in many poor countries have no textbooks of their own and have little access to medical journals.”

These problems still exist in Afro-Asian countries and satellite technology has the potential to overcome them. For example, the South Nepean Satellite Community Health Centre is providing accessible health care and medical resource programs to the community. Priority for care is given to those residents of South Nepean who do not have access to a primary health care provider and who have barriers preventing access to such care, including language, culture, income, mental health or isolation (Lochhead, 2009).

The dedicated satellite will help a lot to improve the health education scenario in Afro-Asian nations by organizing virtual occupational training programmes/workshops for people living in remote and rural areas. This measure will help the people to attend medical training on different aspects. By this provision, people will be able to update their knowledge and skills without going to distant places or paying a hefty fee. The satellite will also offer a number of audio-visual training programmes as evident from the observation of Bontempi et al. (1999, p. 466), “Video conference via satellite will still be the more feasible way to handle training for some time because of its accessibility. More and more communities have been able to take advantage of courses being developed throughout the world by installing low cost satellite dishes making courses available even in remote areas.”

Local nurses normally assist childbirth in rural villages of Afro-Asian nations. The satellite supported SHECs will offer them registration and provide kits for the safe and healthy delivery of newborns. The SHECs will also be helpful in maintaining the registers and record of births and deaths in rural communities. National and international agencies will use SHECs to spread and offer health-related services to Afro-Asian communities via teleconferencing-mode. The satellite support will also be helpful for developmental and health agencies to show their films, slides, documentaries and video programmes to Afro-Asian communities via SHECs

6.3 Regional and National Interaction about Health Education Issues

The data/information about various governmental programmes and schemes related to health education, its implementation and progress would be available through this technology. The facility of teleconferencing between communities and authorities via satellite will allow them to discuss about various health issues like healthy diets, the link between health and physical activity, reducing stress, safe sex behaviour and the adverse effects of smoking in a cost effective and time saving manner.

The ‘Rural Communities’ will get a boost by use of this technology. The rural communities will be able to communicate and interact with administration and members of other communities about health education priorities and issues. The authorities will be able to monitor the progress of various health education schemes without visiting the community, it will save time and speed up the process. The satellite beams will offer an opportunity to various national representatives to talk and interact frequently with communities over health education issues by using either teleconferencing or phone-in facility.

The communities will be able to put forward their questions and queries directly to the concerned authorities. The available facilities will help the communities to assess the status and progress on their complaints and doubts. The administration will seek feedback and advice directly from communities to make their conduct and health education programmes more responsive. The communication between communities and administration via this satellite network will save time and expedite the system. The communities will have the opportunity to forward their complaints to higher authorities in case of non-cooperation from

authorities at local and regional level. In many ways, the satellite support will ensure the right of health education for citizens of Afro-Asian nations.

6.4 Health Education Guidance and Counselling Services

At community level, people will get health education guidance and counselling through SHECs. The SHECs will provide teleconferencing services for people on various health education aspects on regular basis by inviting medical experts. Besides, the list of medical experts consisting their contact address and telephone numbers may also be displayed through SHECs. These facilities will help the people to put their problems, questions and queries before medical experts via teleconferencing mode to seek their advice.

The SHECs will also provide the list and contact of those voluntary, governmental and non-governmental organizations working for the health sector. The people will be able to contact these organizations by using the satellite support for organizing different health education programmes in their respective communities. The SHECs will be helpful to educate the local community about various health issues and will also have the authority to recommend patients to other hospitals for advanced treatment. The centers will arrange online advice to, counselling of and treatment of patients using the satellite support.

6.5 Health Data Bank of Communities

The SHECs will act as a health data bank of communities. The health details, problems and concerns of people will be put up in e-repository of these centers. This data bank will help the government to assess the health education needs of particular region to plan different health schemes accordingly. The communities will be able to learn about different health education information through SHECs. The SHECs will use available ICTs like Community Radio and Television to spread this information to the communities. Besides, people may also visit these centers to access Internet for health information.

The SHECs will be helpful in providing a database of health problems and diseases by preparing a database of various health issues. These centres will also ensure the effective and need based implementation of different health-related campaigns run by national and international agencies (like AIDS awareness and prevention, polio vaccination, birth control).

6.6 Health Education Learning Sharing Platform

The communities will use SHECs as a 'health education learning sharing platform'. These centers will provide an opportunity for people to share their best health education experiences and traditional medicinal knowledge, with fellows from within and outside of the country by using ROT and SIT. The coordinators of SHECs will mediate to disseminate the information provided by people by using www, blogs, chat rooms, etc. The satellite support will help to establish a tele-medicine network of institutions and hospitals. The tele-medicine network will be used for number of activities like sharing of knowledge among medical professionals, conduction of on-line training programmes for nurses, paramedical staff and other health workers, etc.

The satellite support will also provide a number of opportunities for Afro-Asian communities to get tele-medical support for their health problems. The SHECs will help the communities to share and respond about their health problems at regional, national and trans-national level. The satellite supported SHECs will be quite helpful in the rural community to assess and improve the health of both children and adults. These centers will mediate for people to obtain need based advice on different health issues by medical experts via ROT and SIT terminals. In nutshell, the satellite support will be helpful to offer a variety of health education services to people.

7. CONCLUSION

The World Summit on the Information Society (2003) suggested that ICTs should be used to promote collaborative efforts of governments, planners, health professionals, and other agencies along with the participation of international organizations for creating a reliable, timely, high quality and affordable health care and health information systems and for promoting continuous medical training, education, and research. Similarly, in an interview to eHEALTH weekly, Dr. Ashok Kumar, Director, Central Bureau of Health Intelligence (CBHI), India stated, "ICTs surely play a very significant role in (a) widely reaching the people even in the most peripheral and difficult terrain to effectively communicate and create health related awareness, attitude and behavior change, and (b) efficient health information management for better health planning, programs implementation with improved access, efficient delivery, management and timely corrective measures to achieve their objectives." The proposed satellite has to the capability to fulfil all these wishes and expectations.

The need of the hour is that Afro-Asian nations must come together and join hands to overcome health education problems and challenges in Afro-Asian region as observed by Smalley (2007), "Breaking this cycle requires a better understanding about the root causes of these health challenges through sharing experiences, research and strategies and by developing partnerships to scale up health interventions in Africa. We can overcome these challenges by strengthening the system that serves them and creating a partnership between the providers and users of these services." Launching a dedicated 'Afro-Asian Satellite for Health Education' will be a timely and concrete effort to achieve this and many more unmet health education needs of Afro-Asian communities.

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